

ANNUAL REPORT
OF THE
Department of Public Works
OF THE
PROVINCE OF ALBERTA
1951-52

PUBLISHED BY ORDER OF THE LEGISLATIVE ASSEMBLY

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1953

Edmonton, September 10, 1952.

TO HIS HONOUR,

J. J. BOWLEN,

Lieutenant Governor of the Province of Alberta.

SIR,

The undersigned has the honour to submit herewith the Report of the Department of Public Works for the year ended March 31, 1952.

Respectfully submitted,

D. B. MACMILLAN,

Minister of Public Works.

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Government of the Province of Alberta
Department of Public Works

REPORT
OF THE
DEPUTY MINISTER OF PUBLIC WORKS
For the Fiscal Year ended March 31, 1952

Hon. H. B. MacMillan,
Minister of Public Works.

Sir:

I have the honour to submit herewith the report concerning the activities of the Department of Public Works for the fiscal year ended March 31, 1952.

The Building Branch had a very busy year the main feature being the completion of the Aberhart Memorial Sanatorium including Main Hospital, Nurses' Home and Service Building. The opening ceremony was performed by Mrs. William Aberhart. Work on the new Administration Building was carried on and it is expected to be opened in 1953.

A new Administration Building was commenced at the Provincial Mental Institute at Oliver and the Second Wing of the Tuberculosis Building was completed.

The New Land Titles Building in Edmonton was completed. This modern building contains year-round air conditioning and special facilities for storage and handling of records.

The Mechanical Branch carried out a number of changes in the boilers at various Institutions — a new boiler was installed at the Parliament Buildings Power Plant, a new one was also installed at Ponoka and progress was made on erecting the boilers in the new plant at Fort Saskatchewan Gaol. At the Oliver Mental Institute the work was completed in converting boilers from coal to natural gas eliminating the use of coal altogether in the plant. The new Power Plant at the Red Deer Training School was put into full operation in August, 1951.

The steadily increasing industrial activity due to the tremendous development and production in the oil fields has resulted in the corresponding increase in the number of designs, covering pressure vessels, fittings and piping layouts submitted for survey and registration.

Respectfully submitted,
G. H. N. MONKMAN
Deputy Minister.

BUILDINGS BRANCH
REPORT FOR FISCAL YEAR ENDING MARCH 31, 1952

A. Arnold, Superintendent of Buildings

The Buildings Branch of the Department of Public Works is responsible for the servicing and maintenance of all public buildings, and in addition prepares the design and supervises the construction of the new buildings. The following large maintenance items and new buildings formed the major part of the Buildings Branch projects:

ATHABASCA

The Provincial Building was repaired and truss reinforcement completed.

BOWDEN

The main dormitory building was started and plans prepared for the laundry building and heating plant. The six residences for staff were also started and preliminary surveys for drainage and waste water disposal were completed.

BROOKS

The Provincial Horticultural Station Main Building, containing offices, experimental areas, freezing rooms, root cellar and greenhouses was started. This contains approximately 25,000 square feet of useable space and is of advanced functional design. In addition plans have been started for staff residences and a cook and transient labor living accommodation.

CALGARY

The work in Calgary (in addition to the maintenance and repairs of the Public Buildings in the area) consisted of the remodelling and erection of two liquor stores and to the Treasury Branch. Work was started on a Nurses' Aide Training School, Chemical Storage House and Shops Building, all at the Institution of Technology and Art. The Shops Building (to be completed in 1952) covers a total area of 50,000 square feet and also contains one wing 22,000 square feet with a clear span of 80 feet.

In downtown Calgary a new Highway Traffic Office was erected and work was commenced for an office building and major renovations to the Petroleum and Natural Gas Conservation Board Building were started. A power house transformer vault, Blood Transfusion Sub Depot, and an all-steel Snow Plow Shed at the Manchester Yards also were included in this year's program.

CAMROSE

A District Seed Cleaning Plant for the Department of Agriculture and a second Dormitory Building at the Rosehaven Auxiliary Hospital were erected.

CORONATION

A Treasury Branch Building was completed at this location.

DRUMHELLER

A Provincial Building containing office space for Agriculture, Highways, Health, a Treasury, Liquor Store and a Court

Room was completed. The Building is a two storey, masonry construction containing 17,000 square feet.

EDMONTON

A very active building program was carried out in this area. The Aberhart Memorial Sanatorium, including Main Hospital, Nurses' Home and Service Building were all officially opened by Mrs. William Aberhart and at the end of the Fiscal Year (March 31, 1952) the Institution was operating a very near full capacity. Work was carried on at the New Administration Building to be opened in the coming year. The New Land Titles Building was completed and transfer of departments has begun. This modern building contains year-round air conditioning and special facilities for storage and handling of records. Plans have been prepared for the renovation of the Old Court House, and upon release of space this portion will be completely modernized. A Cerebral Palsy Clinic was built for afflicted children.

In order to assist with the disposal of diseased carcasses a gas fired incinerator was erected on the Animal Pathology Laboratory site. An additional floor was placed on Administration No. 1 Building. A number of smaller buildings, including a Welding Shop, Iron Storage Shed, Fire Fighting Demonstration Shed, Addition to a Storage Shed, were also constructed. A reinforced concrete building with special anti-blast provisions was constructed for use as an Alternate Civil Defence Headquarters. An addition was completed for the West End Liquor Store and renovations started for the East End Store as well as Jasper Avenue East Treasury Branch. The Buildings Branch was also responsible for a number of departmental layouts and surveys, including layout of Department of Education (Imperial Lumber Building), survey of occupational use of Parliament Buildings and occupational survey for Department of Industries and Labor. Investigation was also continued on the City-Provincial Housing Project. Parking Lots along 109th Street and curbing and roads at the Aberhart Memorial Site and Public Health Building also received the attention of the Branch.

(University of Alberta)

A new Engineering Building to house the Department of Petroleum and Chemical Engineering, Civil Engineering and the Mathematics Department was started. Several roads were paved and curbing constructed. The works Department received a Storage Shed and Garage.

FAIRVIEW

The School of Agriculture at Fairview received a series of roads and a Water Treatment Plant for softening water and removal of organic substances was installed.

FALHER

Work was done on the Treasury Branch at this location.

FORT SASKATCHEWAN

The Provincial Gaol, located in the Town of Fort Saskatchewan, was considerably enlarged by the addition of a Women's Cell Block containing fifty-six cells. Enlargement and modernization required a new Power House which also started. A gas

regulating station and Farm Equipment and Blacksmith Shop were also added.

GRANDE PRAIRIE

The New Provincial Building at this point was started, containing all Provincial Government Departments. This again followed the general modern design with modifications to suit the local needs. This building contains 32,500 square feet and houses seven different departments.

GUNN

A dining hall was built at this Institution.

INNISFAIL

A Provincial Building was constructed and occupied during the fiscal year

KEITH

At the Central Alberta Sanatorium expansion and modernization has continued. A new Male Staff Dormitory was started alongside the existing dormitories, an addition was built to the Laundry, and a storeroom — workshop building added to the Power House. A five stall garage and new elevator in the Administration Building have also been constructed.

LETHBRIDGE

The Provincial Gaol was considerably improved by the addition of five staff residences, including a combination septic tank of latest design. On the Gaol grounds proper a new Greenhouse replaced the existing structure.

MACLEOD

The Department of Highways received a Paint Shop Addition to their Storage and Repair facilities.

OGDEN

A five room residence and garage were added to the Institution.

OLDS

A Liquor Store was erected in the Town of Olds and the roof trusses in a converted airforce hanger serving the School of Agriculture were repaired.

OLIVER

The Oliver Mental Institute major project was the start of construction of the new Administration Building. The Second Wing of the Tuberculosis Building was completed, resulting in a Y-shaped building for maximum sunlight and air. This building is of fireproof construction containing a number of small wards and service sections. Color schemes and decoration have been specially selected to maintain pleasant and relaxing surroundings. Preliminary plans of a Nurses' Home and Reception Building were also prepared. A recreation Building with a laminated wood truss giving a clear span of forty feet was constructed as well as a Caretaker's Cottage and Bunkhouse at the Nursery. A water storage area and irrigation system was installed at the Nursery.

PEACE RIVER

Final drawings have been prepared for a new Provincial Building.

PONOKA

A Mens' Dormitory has been erected at the Ponoka Mental Hospital and an elevator added. Considerable renovation and enlargement was done to the Boiler House and construction was started on an Incinerator Building.

RAYMOND

Additional water services and fire protection were provided at the Home located at Raymond.

RED DEER

This year's building program mainly concerned the Provincial Training School. A New Dormitory and greenhouse were added. Renovation of the Old Boiler House was carried out and a Transformer Vault and new Electrical Distribution Panel were added.

SLAVE LAKE

A Garage and Work Section was constructed.

STETTLE

The Petroleum and Natural Gas Conservation Board Building consisting of an office and garage was built.

TWO HILLS

A Treasury Branch Office was constructed.

VERMILION

An old gas house was remodelled for a residence at the School of Agriculture.

MECHANICAL BRANCH
REPORT FOR THE FISCAL YEAR ENDED MARCH 31, 1952

Vernon Pearson, Superintendent

This report deals with the activities of the following subdivisions of the Mechanical Branch for 1951-52:

1. The maintenance and operation of power plants and services of the eight largest institutions.
2. The administration of The Steam Boilers Act.

POWER PLANTS and INSTITUTION

MAINTENANCE:

The Power Plant statistics show that the output from the Government Power Plants increased over previous years, the most significant increase being in the use of natural gas as a fuel. 623 million cubic feet were used, as against 432 million for the previous year.

A second new boiler having a capacity of 30,000 lbs. of steam per hour (approx. 1,000 H.P.) was installed in the Parliament Buildings Power Plant. This installation is in preparation for the increased load which will come about by the addition of new buildings. At the same time this move is quite opportune as the existing boilers have been in constant use for forty years.

At Ponoka, a second new 30,000 lbs. per hour boiler was installed in the boiler plant. This move became necessary because of the increasing load and the general unsatisfactory condition of the old boilers. Increasing load conditions made it necessary to install another 200 KW — A.C. generating unit. This unit was purchased from Mountain Park Collieries and is giving excellent service.

At the Fort Saskatchewan Gaol, progress was made on erecting the boilers in the new plant. It is expected that this plant will be substantially completed by the end of 1952.

At the Oliver Mental Institute, work was completed in converting boilers from coal to natural gas eliminating the use of coal altogether in the plant.

The new Power Plant at the Red Deer Training School was completed and put into full operation in August 1951. As we were unable to make satisfactory arrangements with the city of Red Deer for stand-by power, the electrical connection between the plant and their lines was disconnected.

At Lethbridge Gaol, gas burners were installed under the boilers and coal was eliminated entirely from this plant.

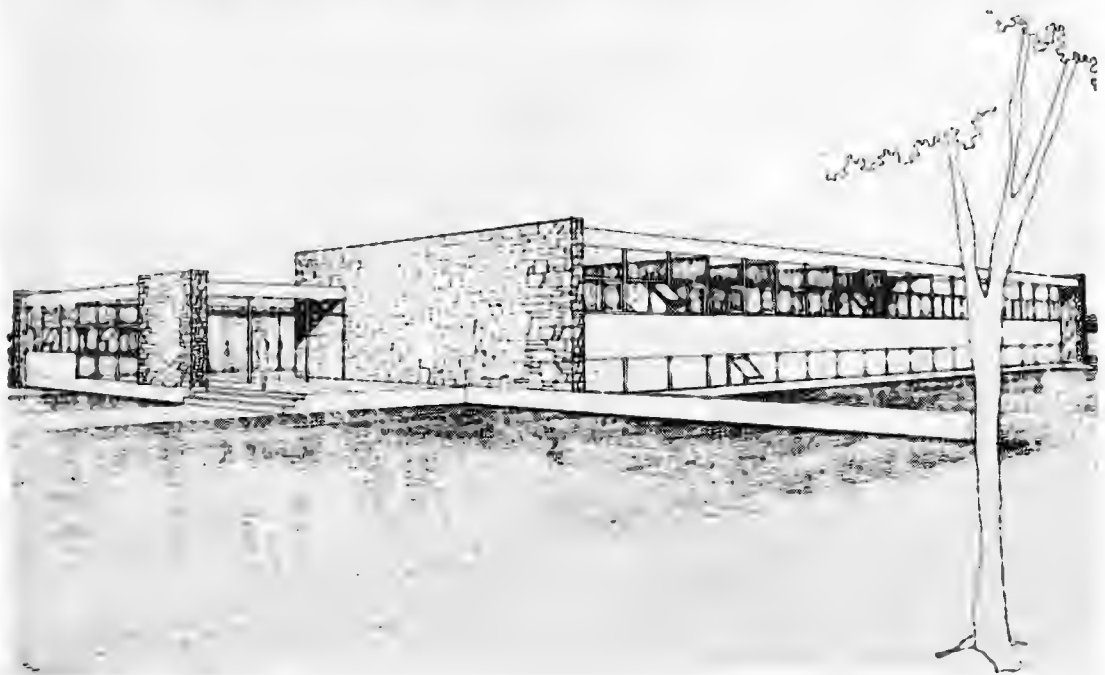
The general situation with regard to the maintenance and operation of Power Plants is satisfactory. The installation of new equipment has to a large extent relieved pressure under which these plants have been operating for several years. In most plants, old and obsolete equipment is being removed and replaced by new and more efficient equipment and it is hoped that within the next few years the plants will be thoroughly capable of taking care of any demands that may be made upon them.



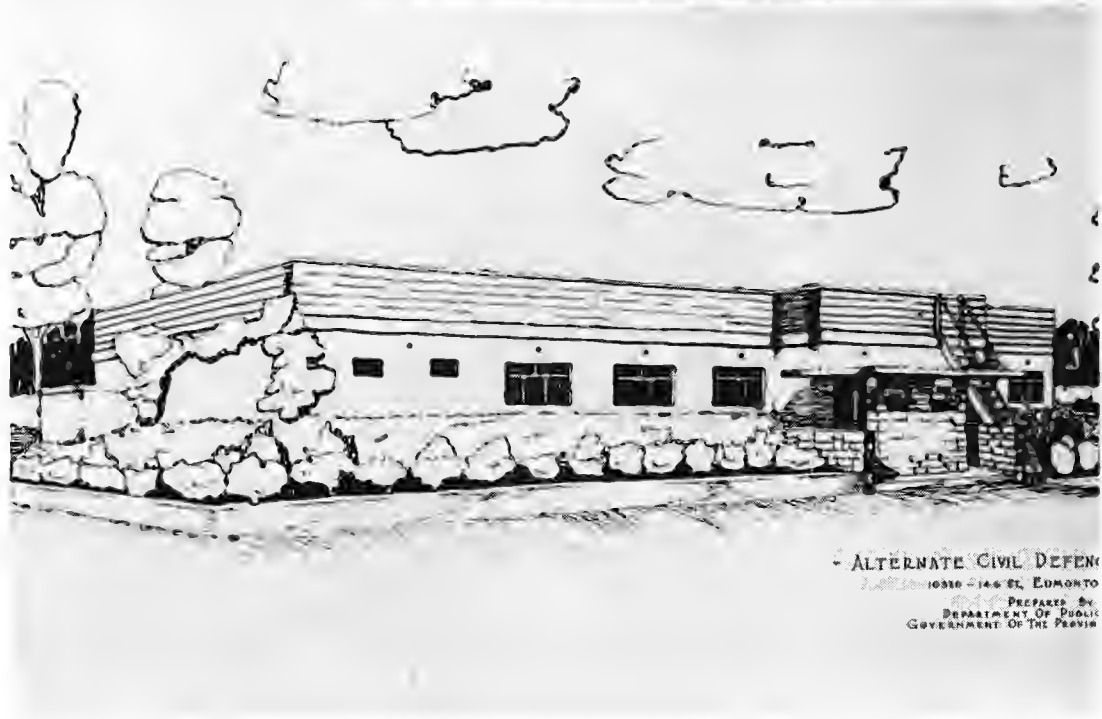
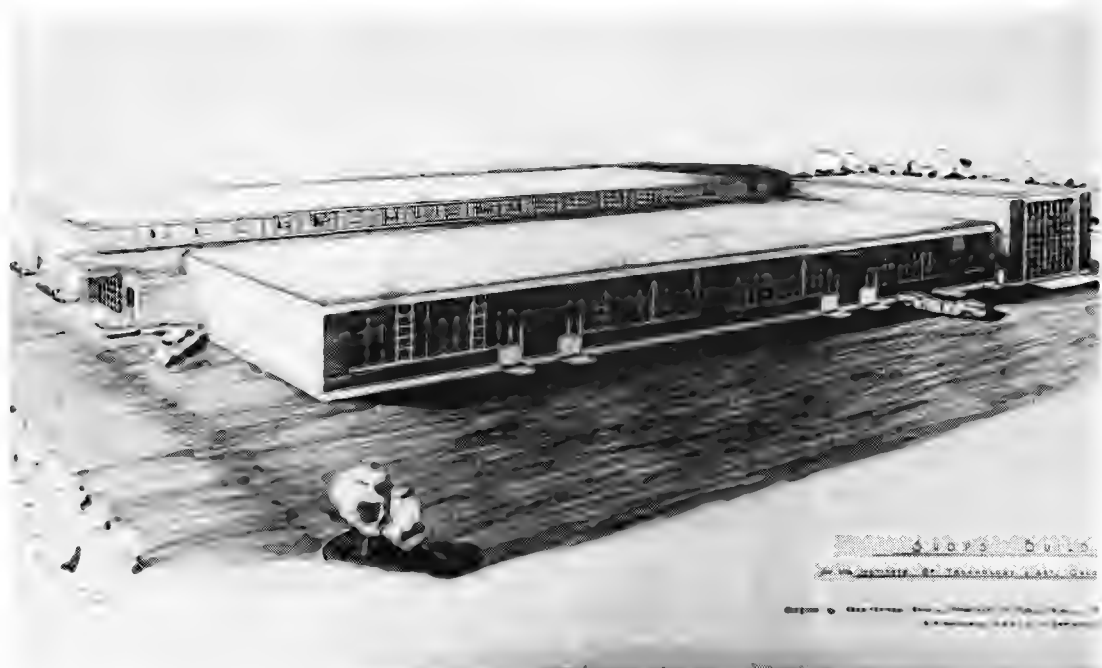
Top—Alberta Office Building, Calgary.

Middle—Edmonton Court House Addition.

Bottom—Aberhart Memorial Sanitorium with Service Building and Nurses' Residence in background.



Top—Male Staff Dormitory, Central Alberta Sanatorium.
Bottom—Administration Building at Oliver Mental Institution.



Top—Shops Building, Institute of Technology and Art, Calgary.
Bottom—Alberta Civil Defence Headquarters, Edmonton.



Top—New Administration Building, Edmonton.
Bottom—118th Avenue Government Liquor Store, Edmonton.

STATISTICS ON CAPITAL EXPENDITURES, PROVINCIAL GOVERNMENT POWER PLANTS

for year ending March 31, 1952.

(Vernon Pearson, Mechanical Superintendent)

	Furnace Alterations. Installation of Gas. Gas Burners, Oil Accessories, Oil Storage Tanks, Pumps, Piping, Etc.	New Generating Unit	Installation of New Water Main	New Boilers, & Equipment	Addition to New Sewage Machine- Disposal Shop Plants Equipment Etc.	New Switch- Board Cable, TOTAL
Parliament Buildings and Administration Buildings, Edmonton.	\$ 15,414.19	\$ 8,684.00	—	\$ 46,517.76	—	\$ 47.41 \$ 70,663.36
Provincial Mental Hospital, Ponoka	6,365.42	12,668.53	7,495.52	48,878.89	—	— 75,408.36
Provincial Gaol, Fort Saskatchewan	—	—	—	63,892.00	—	— 63,892.00
Provincial Gaol, Lethbridge	3,370.57	—	—	—	—	— 3,370.57
Provincial Mental Institute, Oliver	4,306.15	290.40	295.00	—	872.43 3,431.30	— 9,195.28
Central Alberta Sanatorium, Keith.	—	568.67	—	—	—	— 568.67
Provincial Training School, Red Deer	11,873.63	—	2,925.62	—	—	— 14,799.25
TOTAL	\$ 41,329.96	\$ 22,211.60	\$ 10,716.14	\$ 159,288.65	\$ 872.43 \$ 3,431.30	\$ 47.41 \$ 237,897.49

THE BOILERS ACT

There were no reports of the failure of any pressure vessel, but a number of accidents occurred to the operators of boilers.

Ralph Glasere suffered third degree burns from the shoulders down, when he attempted to remove the fusible plug in boiler (A) 6165, while the boiler was under steam pressure. He died in hospital two days later. The boiler is owned by the Glenwood Drilling Company, and was located west of Leduc.

Henry Duhamel suffered the loss of his right foot at the ankle, when he jumped from a moving locomotive in The West Canadian Collieries yards at Blairmore. He slipped under the locomotive from the pilot, but held on to a bar until the locomotive stopped for a switch, otherwise he would have been fatally injured.

Orville Horton Bowen suffered a broken shoulder bone and lacerations about the head, when he fell twelve feet to a catwalk after an overhead beam snapped while lifting a hydraulic coupling at the Sentinel Steam Station of the East Kootenay Power Company.

John Mackin broke a hip as a result of a fall in the boiler room of the Broder Canning Company at Lethbridge.

Chief Engineer William Jones sustained burns about the face and left arm when a malleable iron elbow fractured while starting a gas driven compressor at the Imperial Oil Limited East Edmonton refinery. Subsequently, all malleable iron fittings were discarded in favour of steel fittings.

Henry Clapper's right hand was crushed, and one finger fractured when it was caught in a steam mangle at The New Method Laundry, Edmonton.

Janitor J. Kamp sustained a badly burned hand and shock when he endeavoured to light the pilot prior to purging the setting of Boiler (A) 20455 at the Hay-Penley Dance Academy in Calgary. The resulting explosion also damaged the setting and displaced the draft vane at the top of the chimney.

There were a number of other gas explosions in the furnaces of power and heating boilers, but damage was confined principally to the settings.

Boiler (A) 18308, owned by Foothills Collieries Limited, was extensively damaged due to the use of dirty creek water and operating at too long periods between washouts. It was necessary to ship this boiler to Winnipeg, where two large patches were welded in the lower half of the shell, one in each course. The welded seams were subsequently x-rayed, the entire shell stress relieved and the boiler retubed, after which it was returned to Foothills for reinstallation. The boiler is now in service and the management has been instructed to furnish to the engineers boiler feed water of better quality, so that danger of overheating the boiler heating surfaces will be eliminated.

A lamination was discovered in the rear course of Boiler (A) 6884, located in the Dominion Tar and Chemical Plant at North Edmonton. A thorough examination showed that the

lamination extended over too great an area to permit a satisfactory repair, therefore the boiler was condemned. A new boiler is now being installed in its place.

Caustic embrittlement cracks were discovered in the longitudinal seam of the left mud drum of Boiler (A) 14633, located in the General Hospital, Calgary. The butt straps were removed to permit a thorough examination of the rivet holes, and the discovery of numerous cracks in the rivet hole area resulted in the condemning of the drum. A new all-welded drum has been installed in its place.

The feed water used in Boiler (A) 5822, located in the Woodland Dairy, Ryley, contained highly corrosive elements which attacked all stays, rivet heads and plate edges at joints above the water line. All stays above the water line were replaced, affected rivet heads on plate edges built by electric welding, and the boiler was completely retubed.

This is the second boiler in this plant to be taken out of service owing to the use of impure feed water, and the owners have been advised that the operating pressure will be reduced to fifteen pounds unless suitable feed water is provided for the boiler.

Two new heating boilers were seriously damaged due to being fired while empty. One boiler was completely ruined and a new boiler was installed in its place. The other requires a new firebox before it will be allowed to operate.

A number of boilers were damaged due to low water and excessive accumulation of scale on the heating surfaces. Some of these boilers were satisfactorily repaired and returned to service, while others were replaced by new boilers.

A number of pressure vessels in the oilfields were damaged by fire, but they were subsequently repaired and returned to service.

Included in new steam generator installations are the following:

British American Oil Company's East Edmonton Refinery, two generators, 60,000 pounds per hour each.

McColl-Frontenac Oil Company's East Edmonton Refinery, three generators, 35,000 pounds per hour each.

North West Brewing Company, Edmonton, three horizontal return tubular boilers, 12,000 pounds per hour each.

Macdonald Hotel, Edmonton, two generators, 12,000 pounds per hour each.

Government of Alberta Power Plants:

Power Plant Number One, Edmonton, one generator, 30,000 pounds per hour.

Power Plant Number Three, Ponoka, one generator, 30,000 pounds per hour.

New industrial plants placed in operation during the year include the following:

Shell Oil Company of Canada Limited, Jumping Pound. Gas

Treating and Processing Plant.

British American Oil Company Ltd., East Edmonton Refinery.
McColl-Frontenac Oil Company Ltd., East Edmonton Refinery.
Building Products Limited, East Edmonton.

Difficulties were encountered during the initial runs at the British American Oil Company's new refinery, due to processing trouble, but these have now been eliminated and the refinery is operating satisfactorily and efficiently.

The erection of the new Catalytic Cracking Unit by Foster Wheeler Limited for Imperial Oil Limited East Edmonton Refinery is proceeding rapidly, and the unit should soon be in operation.

Work has commenced on the additional Compressor Unit for the Imperial Oil Limited Absorption Plant at Devon, and the unit is expected to be placed in operation during the latter part of this year.

The erection of the Canadian Industries Limited Explosives Plant at Ogden is practically completed, and the plant should soon be in operation.

A great deal of preparatory work has been done at the site of the Canadian Chemical Company's Plant at Clover Bar, including the erection of buildings and construction of foundations for the various units. We have been informed there will be approximately one thousand pressure vessels in the first line to be erected at this plant, and that eventually there will be six lines. Alloy steel will be extensively used in the fabrication of pressure vessels for this plant. The designs of a large number of these pressure vessels have already been approved.

Much preparatory work has also been done toward the erection of the Canadian Industries Limited East Edmonton Ethylene and Polythene Plant. The vessels in the Polythene Section will operate at elevated pressures, and the design of these vessels have already been approved. Some of the vessels in the Ethylene section will operate at 5300 pounds per square inch, while the vessels in the Polythene section will operate at 22,000 pounds per square inch. The pressure vessels for this plant are in the process of fabrication at Sheffield, England, under the supervision of a Lloyd's surveyor.

The large vessels used in refineries are formed in the fabricator's shop and are assembled and welded in the field. In order that strict compliance with the code can be assured, this method of fabrication places additional responsibility on our inspectors. The inspector must see that all plates are correctly aligned prior to the commencement of welding, and the welders must pass practical tests for the type of material used in the fabrication of the vessels. The welding procedure must be thoroughly checked and adhered to during the welding process. Chipping, and pre-heating where required, must be closely observed and x-ray films checked for possible defects. The inspector must also see that welded seams are spot examined when required by the code.

Shop inspection of pressure vessels manufactured in Alberta requires a great proportion of our inspectors' time, and our staff is doing remarkably well under the present circumstances.

There were six prosecutions for infringement of the Boilers Act and a conviction was obtained in each case.

Inspector of Unfired Pressure Vessels, Lester Ernest Easton, and Assistant Boiler Inspector, Roy Percy Garrett, were appointed to the staff.

At the invitation of the Executive Committee of the National Board of Boiler and Pressure Vessel Inspectors, Mr. Robert Scott attended a joint meeting of the Boiler Code Committee of the American Society of Mechanical Engineers and the National Board of Boiler and Pressure Vessel Inspectors held in New Orleans, Louisiana, April 30th to May 3rd inclusive, 1951.

Concurrent with the joint meeting, the National Board of Boiler and Pressure Vessel Inspectors held its Twentieth General Meeting.

The subjects discussed included the 1951 Addenda to the various sections of the A.S.M.E. Boiler Construction Code, the revision of Section IX "Welding Qualification" and the conservation of alloying elements, used in the production of alloy steel, which are in short supply.

All expenses incurred in attending these meetings were defrayed by the National Board.

The Liquefied Petroleum Gas Industry in the Province is expanding at an ever increasing rate, and propane producing plants are increasing their facilities to provide for the increased demand for propane. Several new bulk dispensing plants have been constructed in different parts of the Province, and others are planned for the immediate future.

The designs of all liquefied petroleum gas containers are submitted for our survey and registration, and the containers are inspected prior to being filled with propane.

The steadily increasing industrial activity, due to the tremendous development and production in the oil fields, has resulted in a corresponding increase in the number of designs covering pressure vessels, fittings and piping layouts, submitted for survey and registration.

This development has imposed extra work on the district inspectors, with the result that our inspection work is rapidly falling behind. To take care of the deferred inspections, and future inspections in new plants presently under construction, we require at least four additional inspectors, two of which should be boiler inspectors and the other two, inspectors of unfired pressure vessels.

There follows a summary of work accomplished during the year, together with a comparative summary of work and revenue for the years 1950-1951 and 1951-1952.

SUMMARY OF WORK AND REVENUE 1951-52 1950-51.

TYPE OF BOILER OR PRESSURE VESSEL INSPECTED:	1951-52	1950-51
Liquefied Petroleum Gas Containers	1368	1032
Horizontal Return Tubular	219	213
Horizontal Furnace	69	43
Water Tube	249	235
Locomotive Type	805	651
Vertical	159	156
Receivers	2587	2230
Heat Exchangers	497	268
Oil Stills	7	3
Steam Processors	96	93
Steel Heating	511	745
Cast Iron	386	389
Miscellaneous	1172	738
Total	8125	6796
CONDITION OF PRESSURE VESSELS INSPECTED:		
Good	6181	4944
Fair	1810	1724
Poor	90	79
Condemned	10	15
Scrapped	34	34
Total	8125	6796
Certificates Issued	7207	5993
Number of Inspection Visits	9081	7802
Number of Special Inspections Under Section 14 of the Alberta Boilers Act	90	67
Factory Act Inspections		536
NUMBER AND CLASS OF ENGINEER'S CERTIFICATES ISSUED:		
First Class	3	5
Second Class, 750 H.P.	6	4
Second Class, 500 H.P.	24	26
Third Class	58	58
Special	7	5
Traction Final	5	3
Fireman's Final	102	35
Provisional	608	472
Temporary	990	760
Welder's Certificates	106	66
Total	1909	1434
Number of Designs Surveyed	885	779
REVENUE:		
Surveying and Registering Designs	6,954.00	6,160.78
Pressure Vessel Registrations	63,357.25	52,490.00
Engineer's Registrations	2,913.00	2,594.00
Engineer's Certificates	9,687.00	7,522.50
Special Inspection Fees	2,191.50	1,653.25
Total	\$85,102.75	\$70,420.53

